WHAT IS CLAIMED IS:

1/	1-0:7	1.	An assembly for crossin	g occlusive or stenotic material, the
2/\	Nesembly com	prising:		
3		a guide	wire comprising an axia	l passage; and
4	1	a drive	shaft rotatably and trans	latably extending through the axial passage
5	of the guidewi	re;		
6		wherei	n the drive shaft compris	es a distal tip that can be rotated and
7	advanced to cr	eate a p	ath through the occlusiv	e or stenotic material.
1		2.	The assembly of claim	wherein the guidewire has a diameter
2	between appro	ximatel	y 0.009 inches and 0.035	inches.
1		3.	The assembly of claim 1	wherein the assembly has a torqueability
2	and pushabilit	y to be a	advanced through a body	lumen without the need of a separate
3	guidewire.			
1		4.	The assembly of claim 3	further comprising a detachable motor
2	coupled to a p	roximal	end of the drive shaft tha	t can impart a rotational movement to the
3	distal tip of the	e drive s	shaft.	
1		5.	The assembly of claim 1	wherein a proximal end of the drive shaft
2	can be manual	ly rotate	ed.	
1		6.	The assembly of claim 1	wherein the distal tip is flattened and
2	twisted.			
1		7.	The assembly of claim 1	wherein the distal tip has a width that is
2	larger than the	width o	of the drive shaft.	
1		8.	The assembly of claim 1	wherein a distal end of the hollow
2	guidewire is s	teerable		
1		9.	The assembly of claim 1	further comprising a housing coupled to
2	the proximal end of the hollow guidewire.			

1	10. The assembly of claim 9 wherein the housing comprises an
2	actuator, wherein the drive shaft defines a longitudinal axis, and wherein movement of
3	the actuator moves the drive shaft along the longitudinal axis.
1	11. The assembly of claim 10 wherein the actuator can extend the drive
2	shaft up to 5 centimeters beyond the distal end of the hollow guidewire.
1	12. The assembly of claim 9 wherein the housing comprises an
2	infusion or aspiration port coupled to the hollow guidewire.
1	13. The assembly of claim 1 wherein the hollow guidewire is
2	maintained in a substantially stationary position while the drive shaff is rotated and
3	advanced.
1	14. The assembly of claim 1 wherein the distall tip of the drive shaft is
2	radio-opaque.
1	15. The assembly of claim 1 wherein the drive shaft has riflings which
2	facilitate proximal transportation of a removed occlusive or stenotic material.
1	16. The assembly of claim 1 further comprising a support system
2	having a distal end, wherein the hollow guidewire passes through the support system such
3	that the distal tip is positioned beyond the distal end of the hollow guidewire and support
4	system.
1	17. The assembly of claim 16 wherein the support system comprises
2	placing means disposed near the distal end for centering or directing the distal end of the
3	support system within the body lumen.
1	18. The assembly of claim 16 wherein the hollow guidewire is
2	advanceable through a vasculature without the use of the support system.
1	19. The assembly of claim 1 wherein the drive shaft defines a
2	longitudinal axis, wherein the distal tip is deflected off the longitudinal axis.
1	20. A guidewire system for passing through an occlusion or stenosis,
2	the system comprising:

3		a hollo	ow guidewire having a steerable distal end, a proximal end/and a	
4	lumen therebetween;			
5		a drive	e shaft movably disposed within the hollow guidewire, the drive	
6	shaft having a	longitu	idinal axis, a proximal end, and a distal tip portion;	
7		a rotat	ing mechanism coupled to the proximal end of the drive shaft; and	
8		an acti	uator coupled to the drive shaft for controlling the exial movement of	
9	the drive shaft	t;		
10		where	in the activation of the actuator advances the rotatable drive shaft	
11	from a retracte	ed posit	ion to an extended position, wherein the rotating distal tip portion in	
12	an extended p	osition	can create a path through the occlusion or stenosis.	
1		21	The system of claim 20 wherein the distal tip portion is flattened	
2	and twisted.	21	The system of claim 20 wherein the distar up portion is mattened	
2	and twisted.			
1		22.	The system of claim 20 wherein the distal tip portion creates a path	
2	forward of the	hollow	guidewire that is at least as large as the outer radius of the hollow	
3	guidewire.			
1		23.	The system of claim 20 wherein the distal tip portion creates a path	
1	forward of the		guidewire that is no larger than the outer radius of the hollow	
2	guidewire.	HOHOW	guidewire that is no larger than the outer factors of the nonew	
3	guidewite.			
1		24.	The system of claim 20 wherein the distal tip portion comprises a	
2	plurality of wi	res con	nected at their ends, a plurality of wires unconnected at their ends,	
3	spiral with a b	lunt tip	, or a loop.	
1		25.	The system of claim 20 wherein the hollow guidewire has the	
2	pushability an	d torqu	eability to be advanced through a body lumen without the need of a	
3	separate guide	wire.		
1		26.	The system of claim 20 wherein the distal tip portion is deflectable,	
2	sharnefled em		l, roughened, or coiled.	
_	Sharpynda, on	iboudou	, roughted, or const.	
14	1 / (M)	27.	The system of claim 20 wherein the rotating mechanism and	
20	actuator are	oupled t	ogether such that the drive shaft is rotated and advanced	
3	simultaneous	χ .		
			· · · · · · · · · · · · · · · · · · ·	

1		28.	The system of claim 20 wherein the rotating mechanism and
2	actuator are independently rotated and advanced.		
1		29.	The system of claim 20 wherein the rotating mechanism is
2	removably att		the drive shaft.
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1		30.	The system of claim 20 wherein the lumen of the hollow guidewire
2	is configured	to aspira	ate fluids and debris from or infuse fluids into the occlusion or
3	stenosis.		
1		31.	A system for crossing an occlusion or stenosis within a body
	luman the au		
2	lumen, the sys		/
3			ngate member having a proximal end, a distal end, and an axial
4	passage exten	_	a distal tip at the distal end;
5		a drive	shaft rotatably and translatably receivable in the axial passage of
6	the elongate n	nember;	and
7		a flatte	ened and twisted distal tip attached to the drive shaft that can create a
8	path in front of	of the ele	ongate member, wherein the drive shaft and distal tip are moveable
9	between an ax	cially re	tracted configuration and an axially extended configuration.
1		32.	The system of claim 31 wherein the distal tip in the axially
2	retracted conf		n has a profile no larger than that of the distal tip
2	Tetracted com	15010110	in has a prome no ranger than that of the country
1		33.	The system of claim 31 wherein the distal tip is sharpened.
1		2.4	The system of claim 31 wherein the distal tip comprises at least
1		34.	The system of claim 31 wherein the distaint p comprises at least
2	two turns.		
1		35.	The system of claim 31 wherein the elongate member is a hollow
2	guidewire.		
_	guidowno.		•
1		36.	The system of claim 35 wherein the hollow guidewire has a
2	steerable tip.		·
1		37.	The system of claim 35 wherein the hollow guidewire has a
2	diameter betw	een app	proximately 0.009 inches and 0.035 inches.

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1	38	3. The s	ystem of claim 31 further comprising a rotating mechanism	
2	coupled to a proximal end of the drive shaft to facilitate rotation of the drive shaft.			
1	39	O. The s	ystem of claim 38 wherein the mechanical rotating	
2	mechanism is det	tachable fro	m a proximal end of the drive shaft.	
	1			
his	40). A sys	tem for crossing an occlusion or stenosis within a body	
12 10	lumen, the system	n comprisir	ng:	
3	an	elongaten	nember having a proximal end, a distal end, and an axial	
4	passage;	/		
5	a	drive shaft	comprising a longitudinal axis rotatably and translatably	
6	disposed in the a	xial passago	of the elongate member, wherein a proximal portion of the	
7	drive shaft is removably attached to a rotating mechanism and a distal tip is deflectable			
8	off of the longitudinal axis;			
9	w ¹	herein the r	otating mechanism rotates the drive shaft so that a distal tip	
10	of the drive shaft	can be adv	anced beyond the distal end of the elongate member to create	
11	a path that is larg	e enough to	pass the elongate member through the occlusion or stenosis.	
		•		
1	41	. The s	ystem of claim 40 wherein the elongate member has a	
2	steerable tip.			
1	42) The s	ystem of claim 40 wherein the elongate member has an outer	
2		`	ately 0.035 inches and 0.009 inches.	
2	diameter between	i appioxim	nercy 0.035/menes and 0.005 menes.	
1	43	3. The s	ystem of claim 40 wherein the path created by the distal tip is	
2	at least as large a	s the diame	ter of the distal end of the elongate member.	
1	4.4	Th	water of Time 10 who main the most of by the distal time is	
1	44		ystem of claim 40 wherein the path created by the distal tip is	
2	no larger than the	e diameter o	of the distal end of the elongate member.	
1	45	5. The s	ystem of claim 40 wherein the drive shaft can extend up to 5	
2	centimeters beyo	nd the dista	ll end of the elongate\member.	

a retracted position and an extended position, wherein the distal tip in the retracted

position can be completely disposed within the elongate member.

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The system of claim 40 wherein the drive shaft is movable between

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1	47. The system of claim 40 wherein the drive shaft is movable between
2	a retracted position and an extended position, wherein the distal tip in the retracted
3	position at least partially extends but of the distal end of the elongate member.
1	48. The system of claim 40 further comprising a support or access
1	
2	system disposed over the elongate member, wherein the rotating mechanism is detached
3	from the drive shaft prior to positioning the support or access system over the elongate
4	member.
1	49. The system of claim 40 wherein the axial passage of the elongate
2	body is configured for infusion or aspiration of the body lumen.
1	50. A method of crossing an occlusion or stenosis within a body lumen
2	comprising:
3	positioning a hollow guidewire comprising a drive shaft into the body
4	lumen;
5	rotating the drive shaft within a lumen of the guidewire;
6	extending the drive shaft from a retracted configuration to an extended
7	configuration; and
8	advancing the distal portion of the drive shaft into the occlusion or
9	stenosis.
1	51. The method of claim 50 wherein the drive shaft is simultaneously
2	extended and rotated.
1	52. The method of claim 50 wherein the drive shaft is independently
2	extended and rotated.
1	The weethed of claim 50 wherein the drive shoft in the extended
1	53. The method of claim 50 wherein the drive shaft in the extended
2	configuration creates a path at least as large as the perimeter of the distal end of the
3	elongate member.
1	54. The method of claim 50 further comprising advancing the
2	guidewire through the body lumen without the use of a separate guidewire.

1	55. The method of claim 50 further comprising maintaining the
2	position of the guidewire during the advancing of the drive shaft.
1	56. The method of claim 50 further comprising moving a support
2	system through the body lumen.
1	57. The method of claim 56 wherein the support system is moved ove
2	a guidewire, wherein the guidewire is removed from the support system prior to
3	positioning the hollow guidewire within the support system and body lumen.
1	58. The method of claim 56 wherein the support system is moved
2	through the body lumen over the hollow guidewire.
1	59. The method of claim 56 wherein a rotating mechanism is detached
2	from the drive shaft prior to moving the support system over the hollow guidewire.
1	60. The method of claim 56 further comprising infusing or aspirating
2	the body lumen through the support system.
1	61. The method of claim 56 further comprising maintaining the
2	position of the support system in the body lumen during the extending step.
1	62. The method of claim 56 further comprising using the support
2	system to perform a balloon angioplasty, stent placement, ultrasound, or an atherectomy
1	63. The method of claim 50 further comprising infusing or aspirating
2	the body lumen through the hollow guidewire.
1	64. The method of claim 63 wherein the infusing or aspirating is
2	performed simultaneously with the creation of the path.
1	65. The method of claim 63 wherein infusing comprises delivering at
2	least one of a therapeutic material, rinsing material, a dye, and a diagnostic material
3	through the elongate member.
1	66. The method of claim 50 further comprising steering the distal end
2	of the elongate member

e de	1	67. Akit comprising:
W/	2	a hollow guidewire having an axial passage;
9 11	3	a rotatable drive shaft having a shaped distal tip, the rotatable wire being
191	4	removably received within the passage of the hollow guidewire;
·// `	5	instructions for use in passing through occlusions in a body lumen
	6	comprising rotating the inner wire within the steerable hollow guidewire and advancing
	7	the drive shaft into the occlusive material to create a path through the occlusive material;
	8	and
	9	a package adapted to contain the hollow guidewire, rotatable wire, and the
	10	instructions for use.
_	1 1	The lit of slaim 67 wherein rotation of the shaped digtal tip greates
	1.h	68. The kit of claim 67 wherein rotation of the shaped distal tip creates
	NA	a profile that is at least as large as the outer diameter of the hollow guidewire.
	1	69. The kit of claim 67 wherein rotation of the shaped distal tip creates
	2	a profile that is no larger than the outer diameter of the hollow guidewire.
	1	70. The kit of claim 67 wherein the hollow guidewire has an outer
	2	diameter between approximately 0.035 inches and 0.009 inches.
!!	1	71. The kit officiair 67 wherein the shaped tip comprises a deflected
	2	tip, a sharpened tip, a coiled tip or a roughened tip.
(
L	3/1	72. The kit of claim 67 wherein the hollow guidewire has a steerable
	\mathcal{M}_{N}	distal polition.
U	7 1	73. The kit of claim 67 further comprising a support or access system,
	2	wherein the support or access system is sized to removably receive the hollow guidewire
	3	and position a distal end of the hollow guidewire adjacent the occlusion.
	J	and position a distance of the second of the
	1	74. The kit of claim 73 wherein the support or access system comprises
	2	an atherectomy catheter, support catheter, a balloon angioplasty catheter, a stenting
	3	catheter, infusion catheter, rotational catheter, extractional catheter, or a guiding catheter.

1	75.	The kit of claim 74 further comprising a second guidewire, wherei
2	the support or access	system is advanced through the body lumen over the second
3	guidewire.	
1	76.	The kit of claim 67 further comprising a power supply and a motor
2	wherein the motor ca	an be coupled to a proximal end of the rotatable drive shaft so as to
3	rotate the drive shaft	
1	77.	The kit of claim 76 further comprising attachment mechanism for
2	detachably coupling	the motor to the drive shaft.
1	78.	The kit of claim 76 wherein the power supply comprises a plastic
2	sheath cover.	
1	79.	The kit of claim 77 wherein the motor is movably housed within a
2	housing, wherein the	housing is coupled to the hollow guidewire through a luer.
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